

1/14

FIG. 1

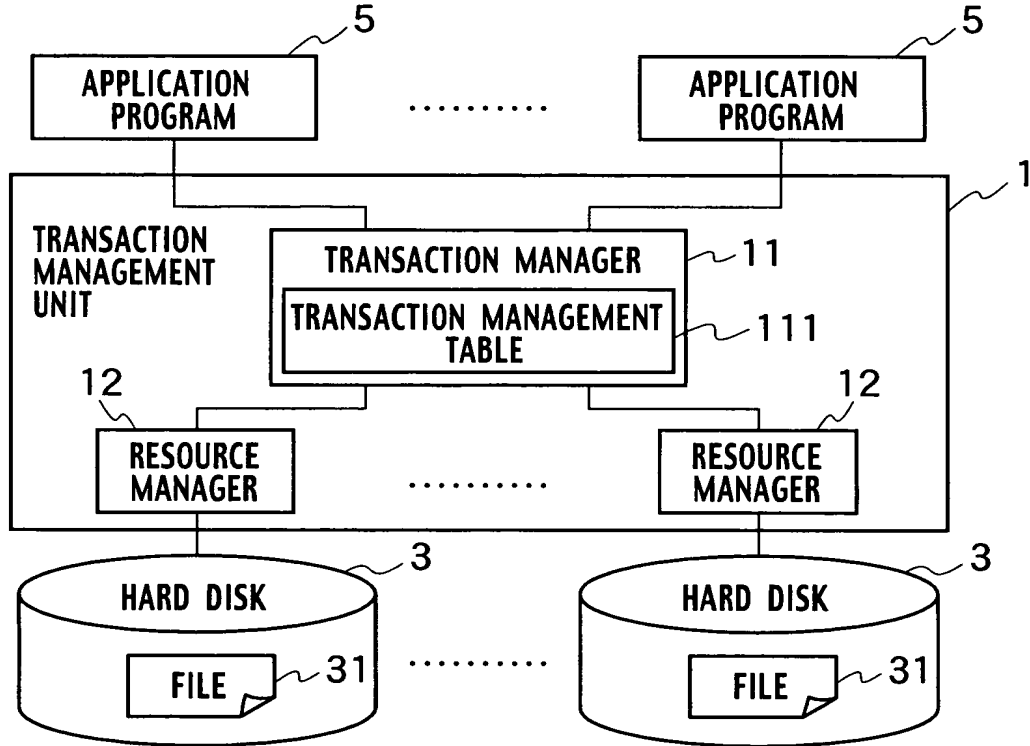


FIG. 2

```
<?xml version="1.0"?>
<flowers>
  <flower>
    <name>Tulip</name>
    <color>Yellow</color>
    <price>150</price>
  </flower>
  <flower>
    <name>Rose</name>
    <color>Red</color>
    <price>500</price>
  </flower>
  <flower>
    <name>Lilac</name>
    <color>White</color>
    <price>300</price>
  </flower>
</flowers>
```

2/14

FIG. 3

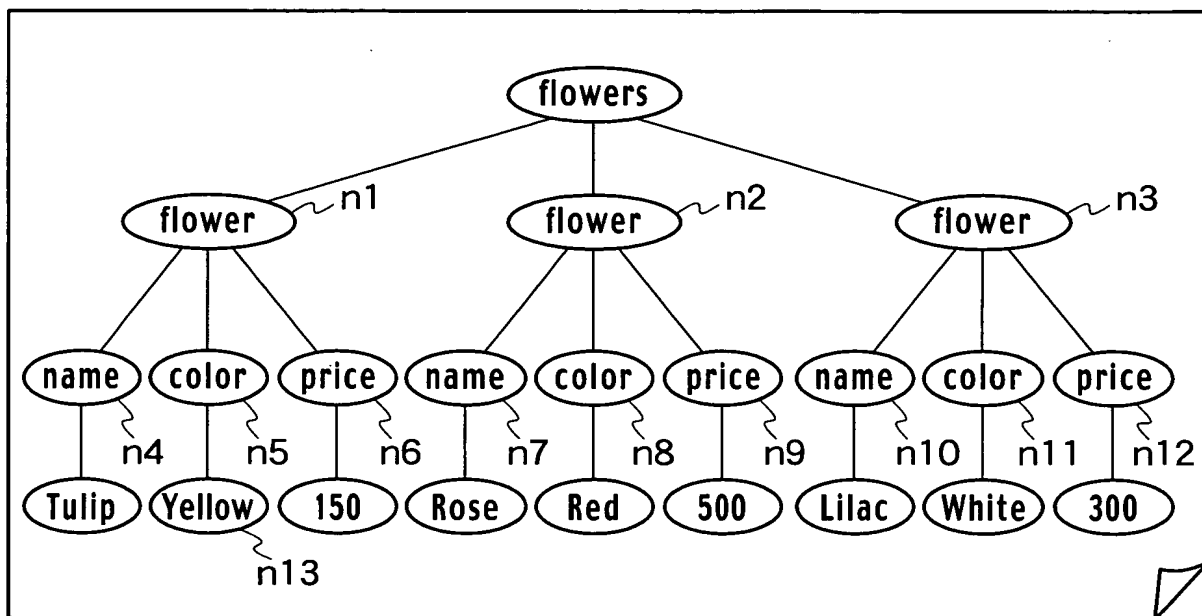
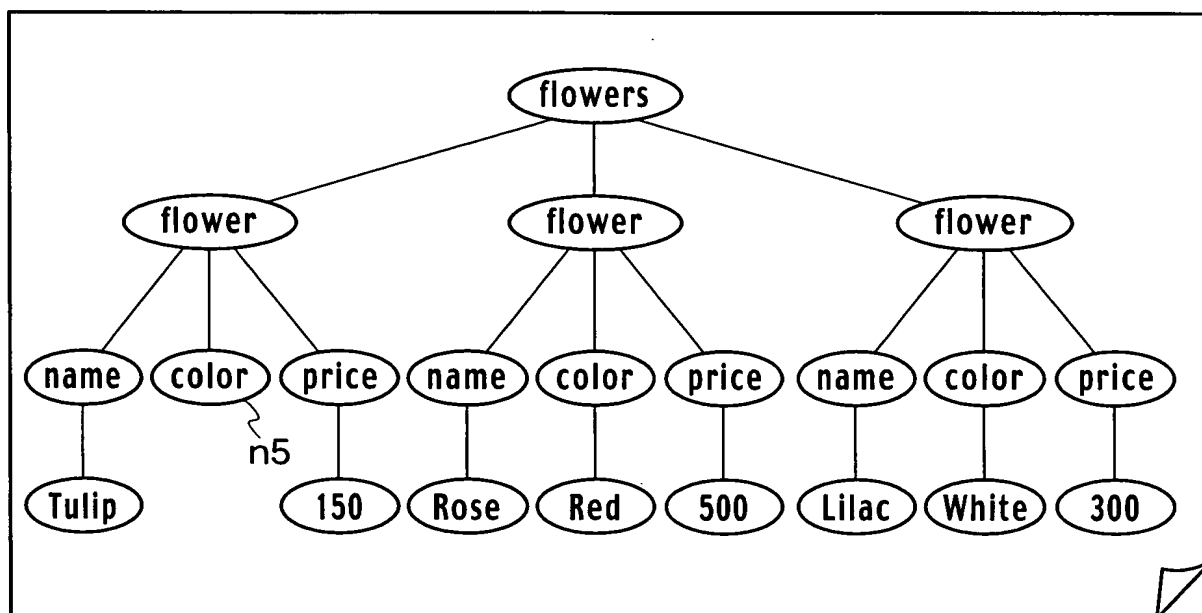


FIG. 4



3/14

FIG. 5

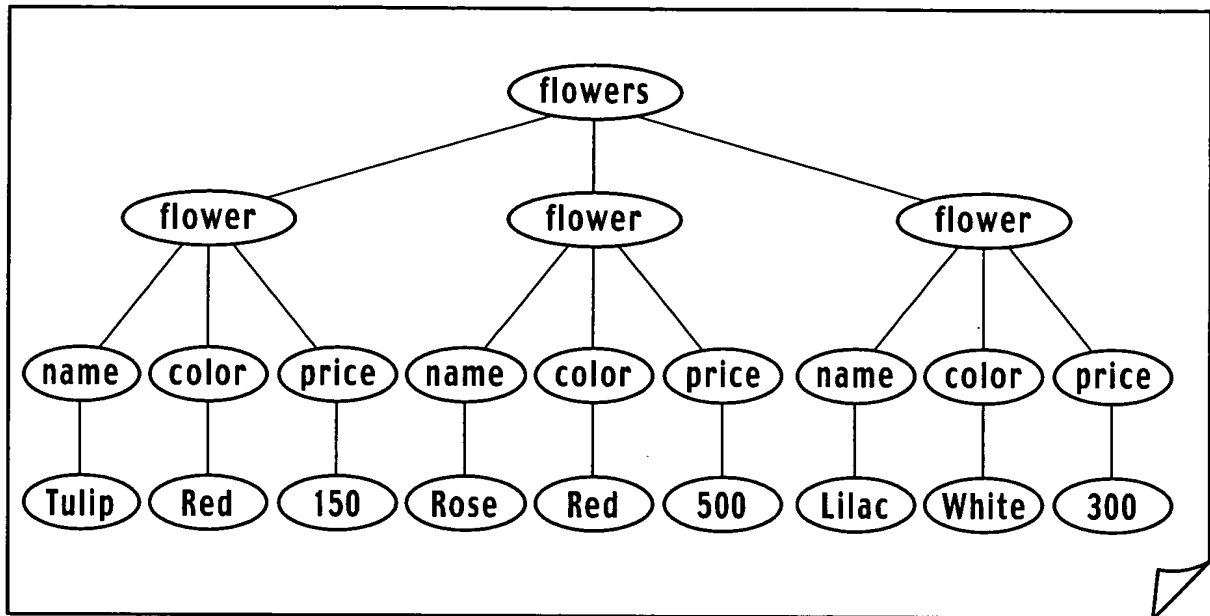


FIG. 6

TRANSACTION	RESOURCE MANAGER
T1	R1
T2	R2
T3	R1 , R2
T4	R2
T5	R1

4/14

FIG. 7

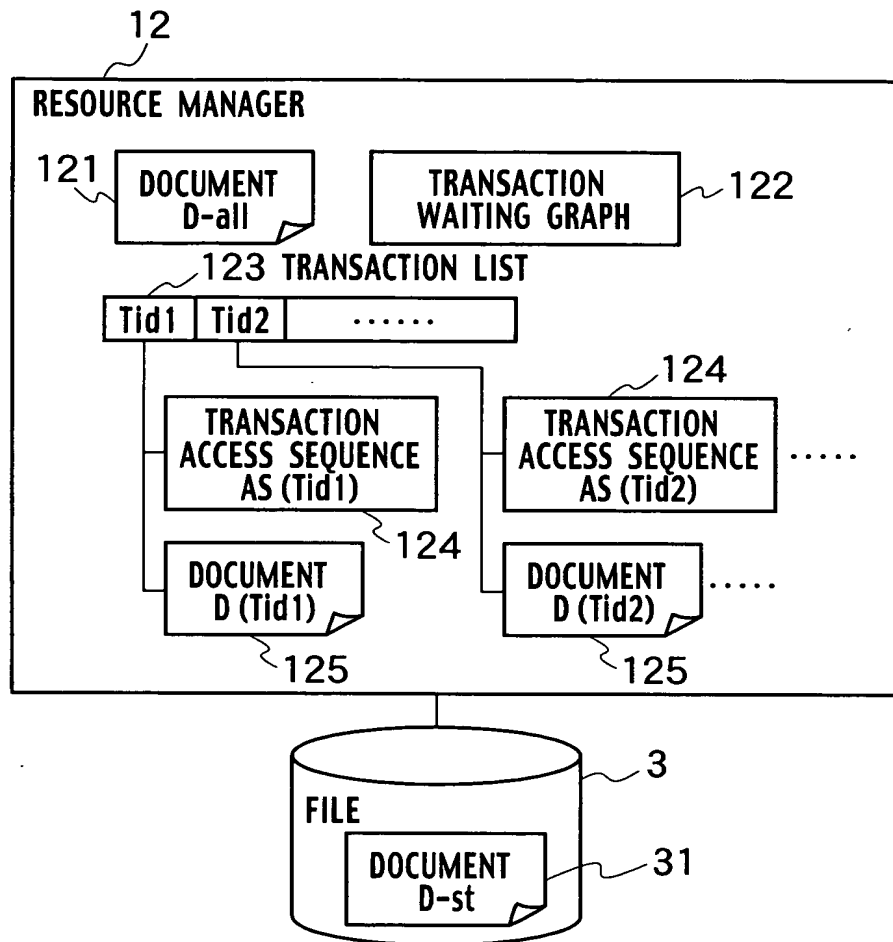


FIG. 8

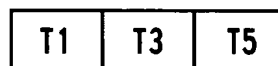
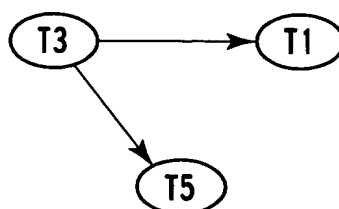


FIG. 9



5/14

FIG. 10

ACCESS NUMBER	READ OR WRITE	ACCESS OPERATION
1	r	READ ("flower/name")
2	r	READ ("flower [name=Tulip] /color")
3	w	REPLACE (node2, "Red")

FIG. 11

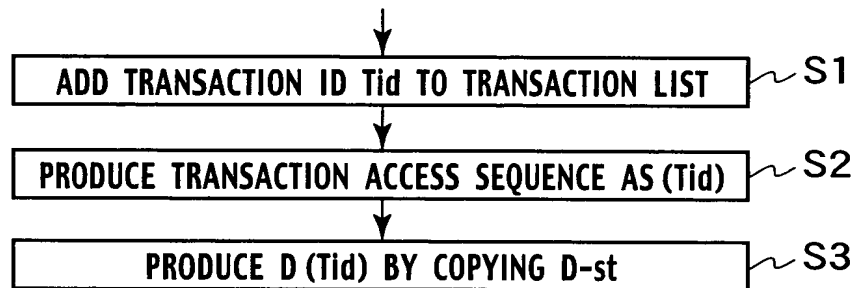
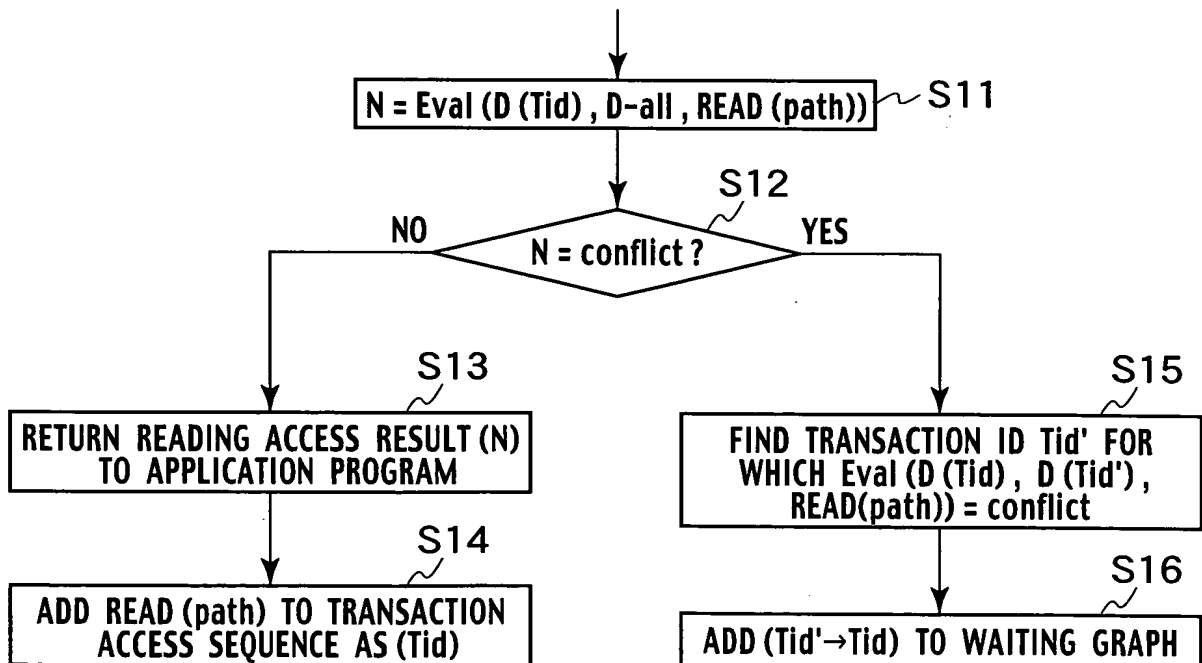
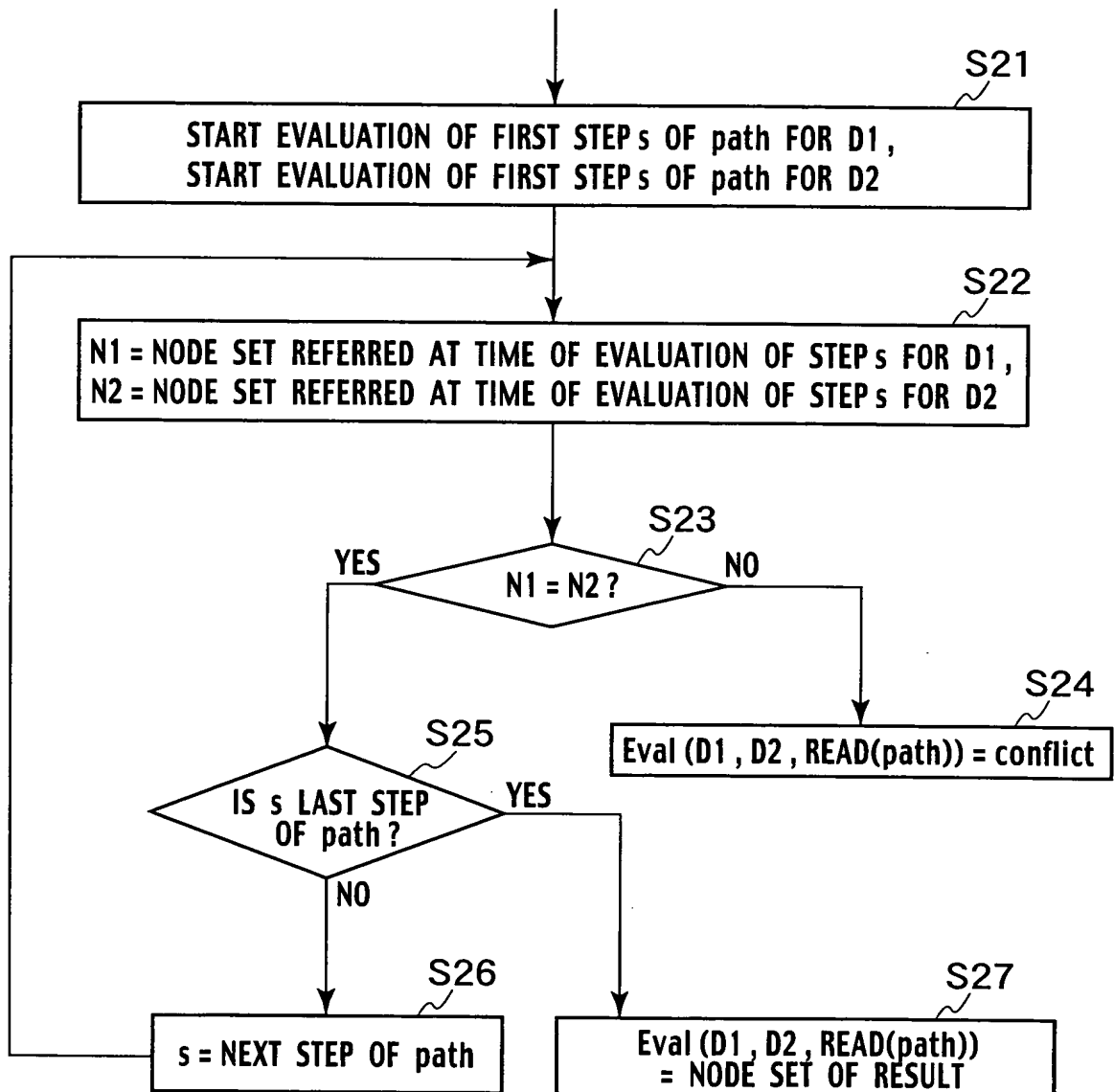


FIG. 12



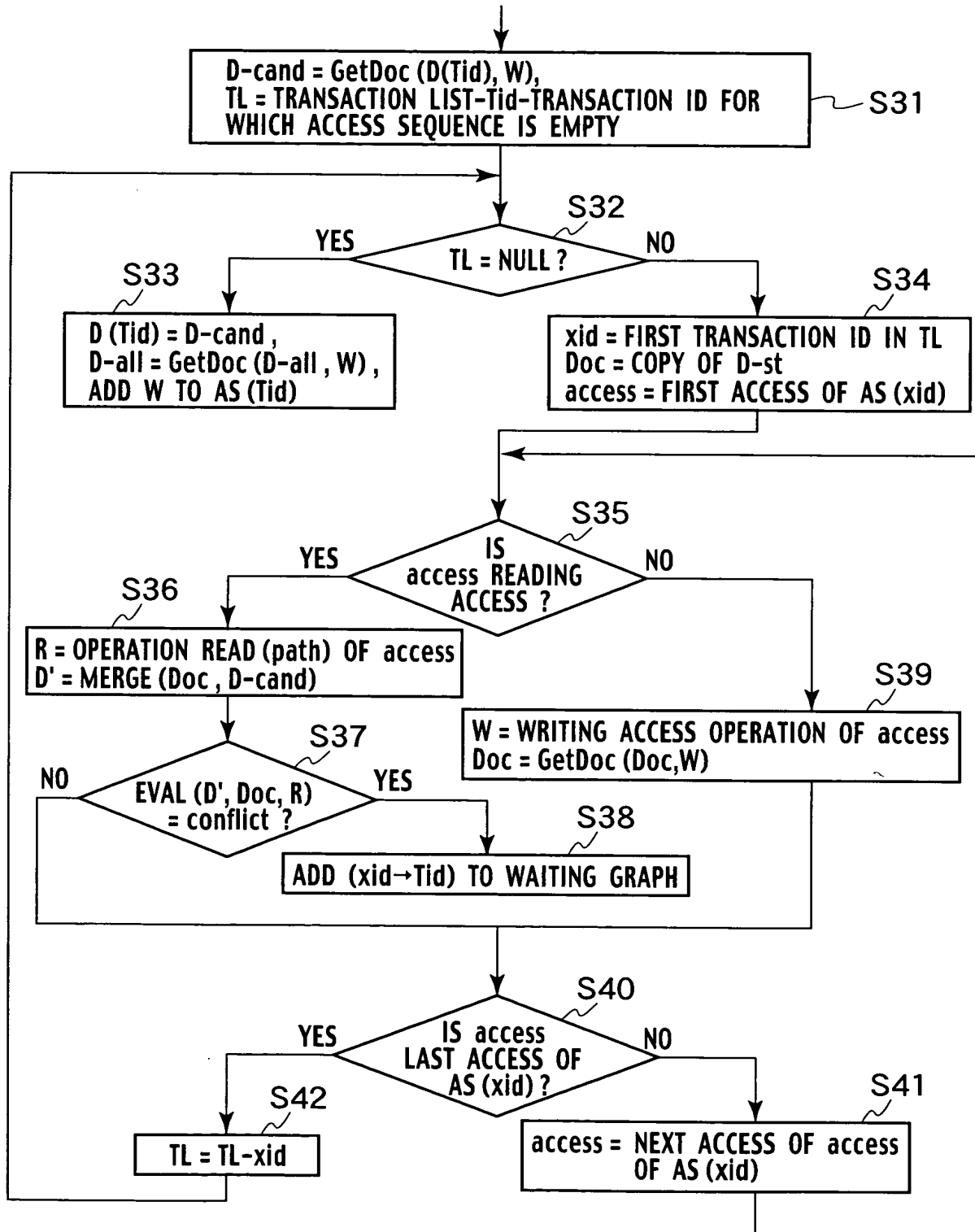
6/14

FIG. 13



7/14

FIG. 14



8/14

FIG. 15

ACCESS SEQUENCE OF TRANSACTION Tid

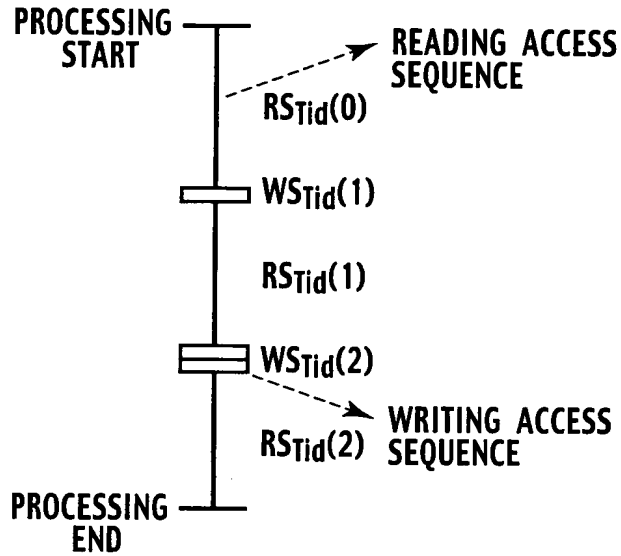
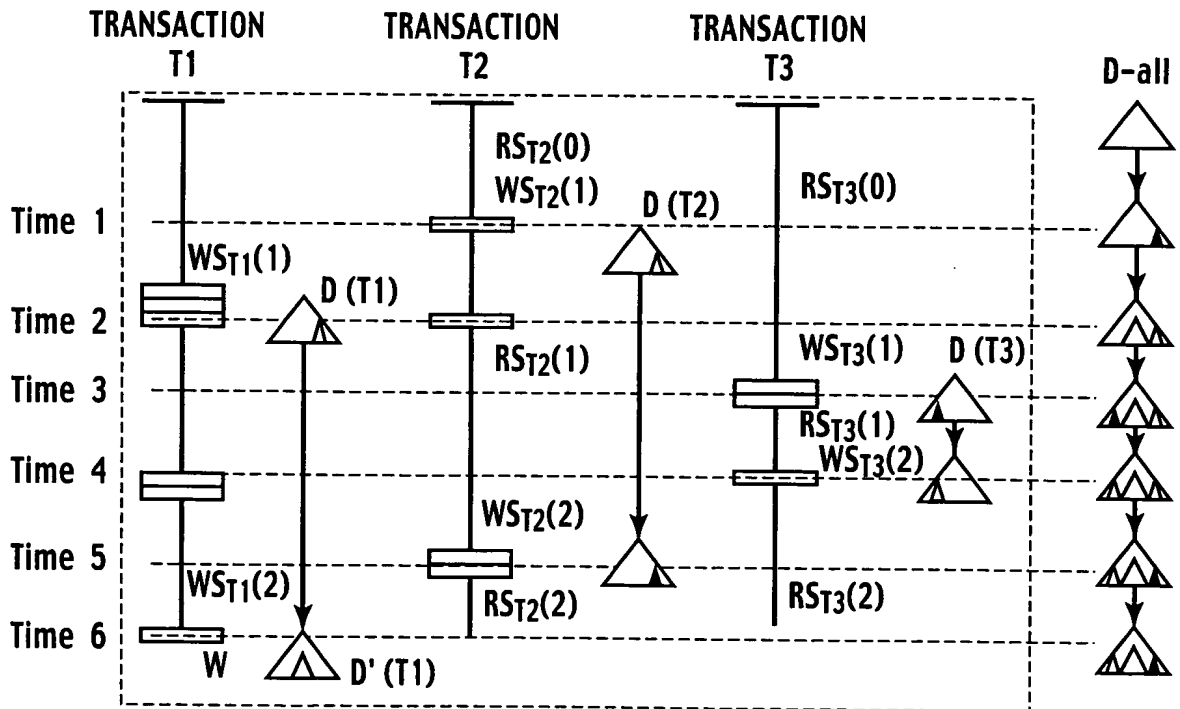
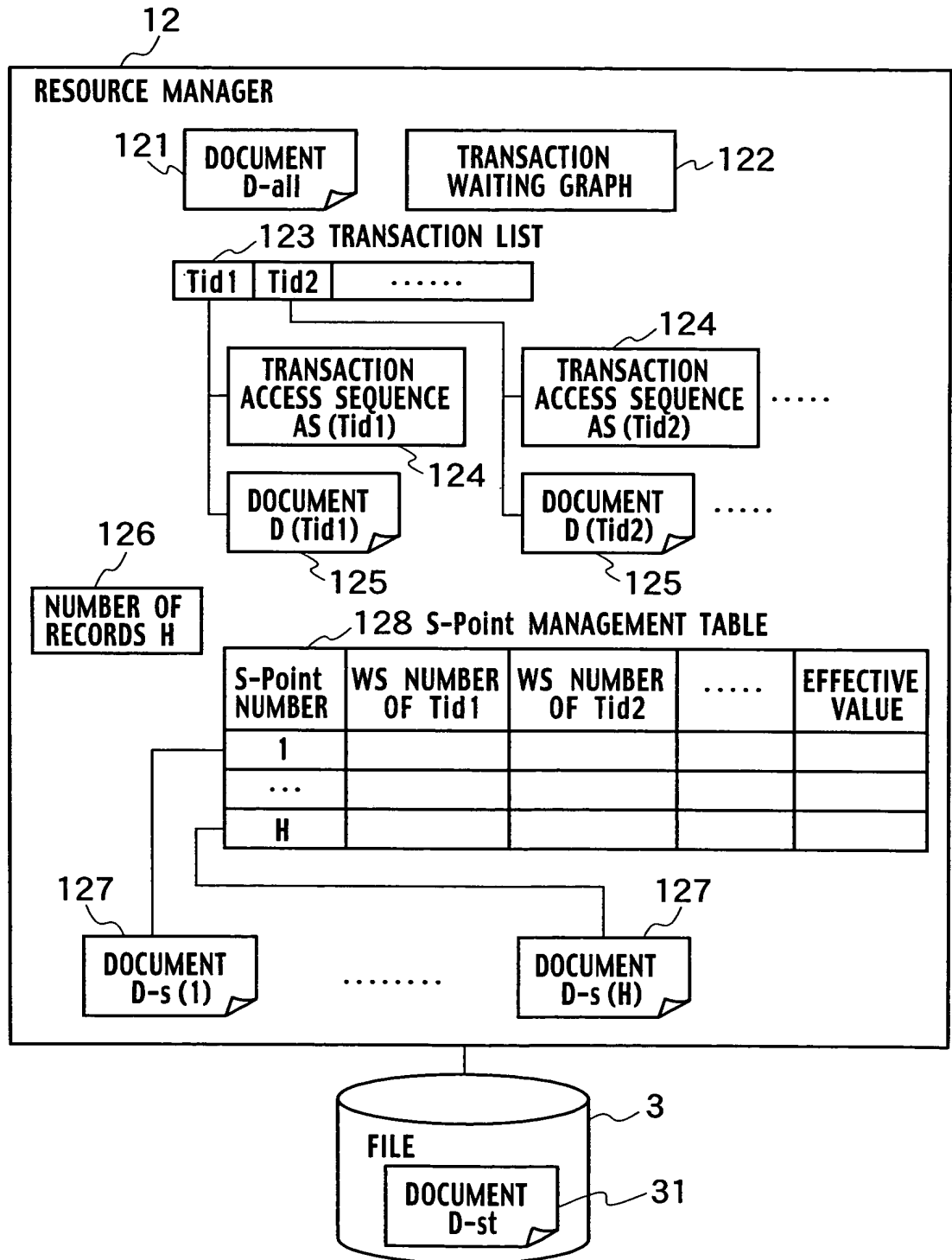


FIG. 16



9/14

FIG. 17

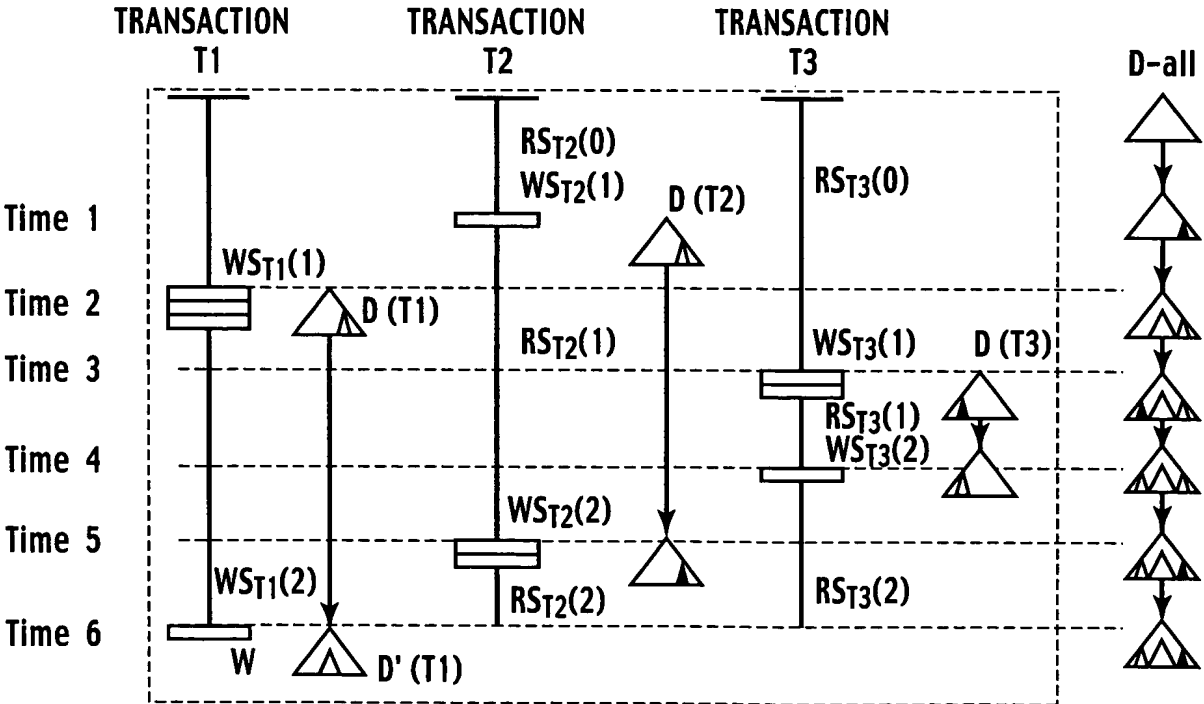


10/14

FIG. 18

	NUMBER OF WRITING ACCESSSES	
RS(0)		READING ACCESS OPERATION #1 READING ACCESS OPERATION #2
WS(1)	1	WRITING ACCESS OPERATION
RS(1)		READING ACCESS OPERATION #1 READING ACCESS OPERATION #2
WS(2)	2	WRITING ACCESS OPERATION #1 WRITING ACCESS OPERATION #2
RS(2)		READING ACCESS OPERATION #1 READING ACCESS OPERATION #2

FIG. 19



11/14

FIG. 20

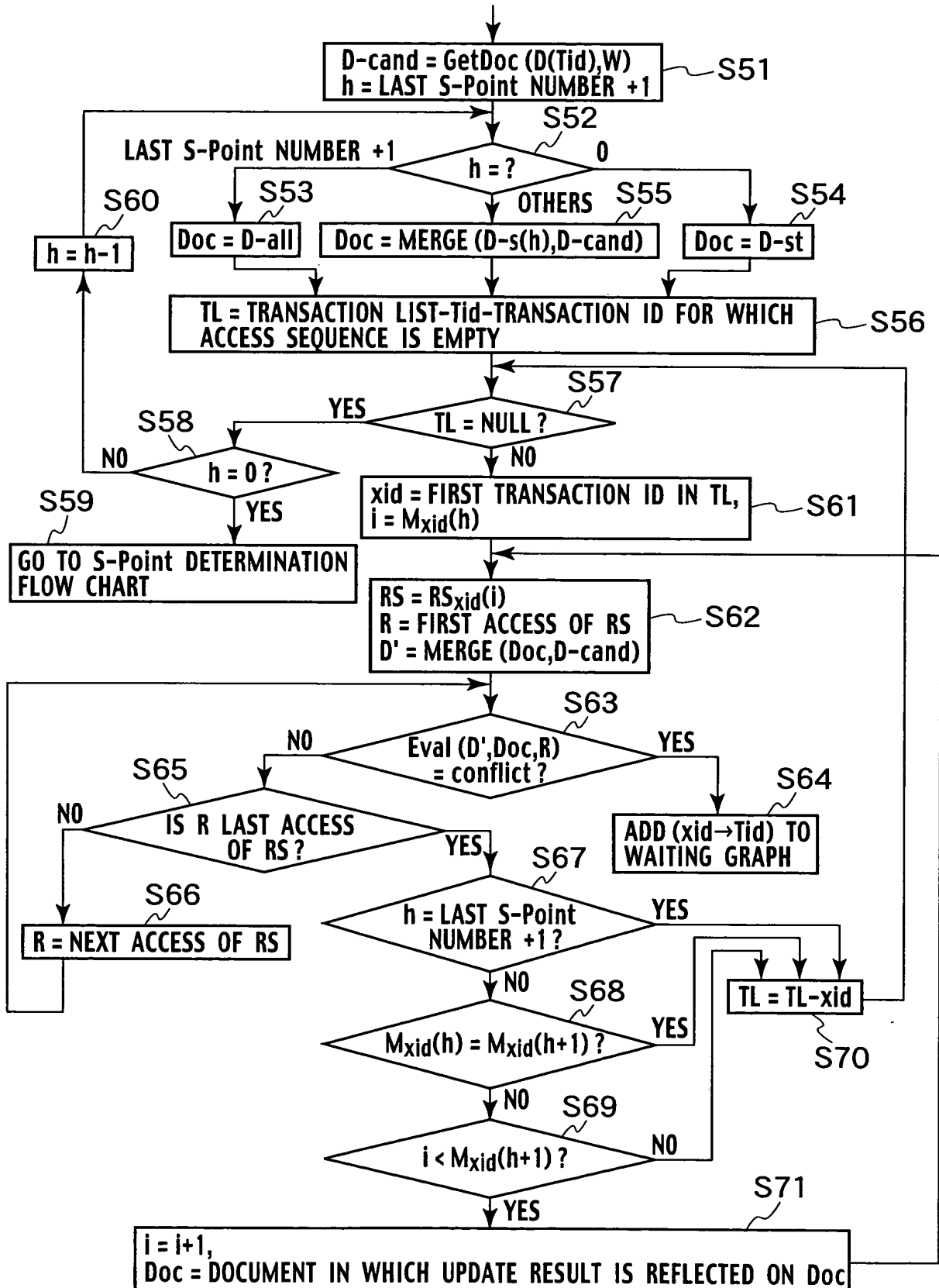
S-point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	0	1	0	1
2	1	1	0	3

FIG. 21

S-Point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	1	1	0	4

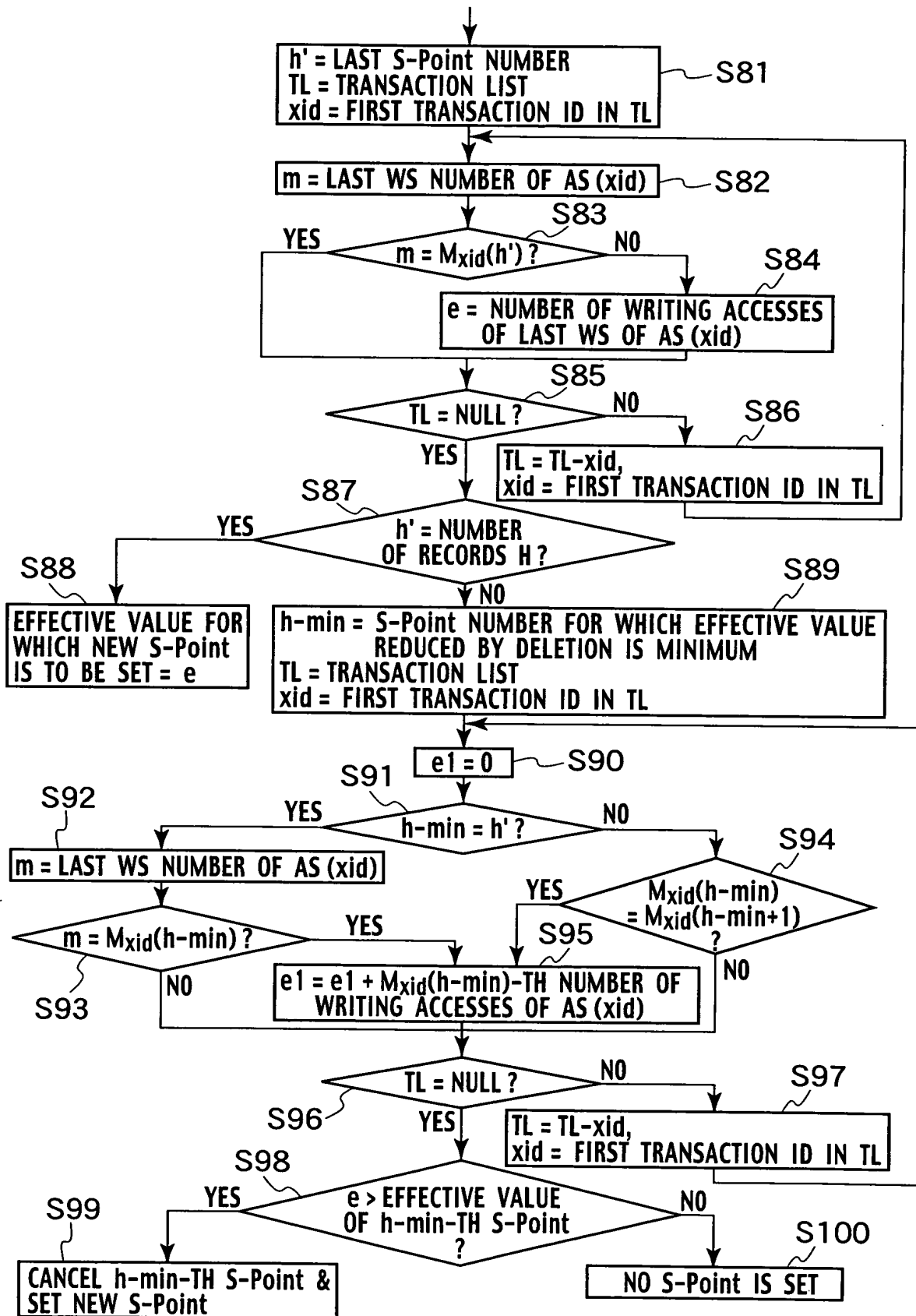
12/14

FIG. 22



13/14

FIG. 23



14/14

FIG. 24

(a)

AT Time 2

S-Point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	0	1	0	1
2	1	1	0	3

(b)

AT Time 3

S-Point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	0	1	0	1
1	1	1	0	4
2	1	1	1	2

(c)

AT Time 4

S-Point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	1	1	0	4
1	1	1	1	6
2	1	1	2	1

(d)

AT Time 5

S-Point NUMBER	WS NUMBER			EFFECTIVE VALUE
	T1	T2	T3	
1	1	1	1	6
2	1	1	2	1
2	1	2	2	3